

REMARKS

Claims 1 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Harkin et al. (U.S. Patent no. 5,999,200; hereinafter Harkin) in view of White , et al. (U.S. Patent no. 5,918,225; hereinafter White).

Applicant's claim 1 calls for "determining maximum and minimum values of index of normal table area of a lookup table, and expanding the lookup table opcodes above and below said maximum and minimum values of said index and removing core loop checks."

As stated in the specification the prior implementation required about 4-5 clocks for each pixel. The total rendering clock count is reduced to two clock steps by the improved claimed steps. This is not taught in these references. The examiner acknowledges that Harkin does not disclose the step of determining the maximum and minimum values of index, and expanding the look up table opcodes. The examiner states that White teaches this at lines 51-52 expanding the look up table opcodes. Applicant's have examined the White reference and have not determined where the reference teaches anything about determining maximum and minimum index values of the table or step 27 in applicant's Fig. 2 or removing the core loop checks. The White reference simply increases the number of entries from 256 to 65535. It does not teach determining maximum and minimum index values of the table or expanding the lookup table opcodes above and below the minimum values of the index of normal table area. Further it does not teach removing the core loop checks. White is a SQL-Based database and teaches nothing about enhancing the rendering of pixels in the case of opcoder. For these reasons

it is not seen where applicant's claimed invention would be obvious in view of these references.

Applicant's claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harkin et al in view of White et al as applied to claim 1 and further in view of applicant's admitted prior art. The examiner references page 7, line 16 – page 8, line 21. The examiner does not reference only applicant's admitted prior art but references applicant's teaching according to the present application in the recitation of page 8, lines 5 -21. Applicant's present teaching is that discussed beginning on line 5 of page 8 in stating that: “ In accordance with the present invention for a given lookup table, maximum and minimum values of index are determined as illustrated by step 27 of Fig. 2” and stating that the “lookup table is expanded in both directions to take care of these maximum and minimum values as illustrated by step 29 in Fig. 2”and that of removing the checks in the core loop. This is not admitted prior art and is that of applicant's claimed teaching. The examiner is therefore not relying on prior art in the rejection but on the applicant's own teaching. Claims 2 and 4 are therefore deemed allowable. To suggest it is inherent since it is the closest to the actual index implemented in the normal range is not based on the references but again is based on hindsight reasoning of applicant's teaching. There is nothing that suggests the steps of determining the maximum and minimum of the index, and expanding the table to handle these values and removing the checks in the core loop to save the clock cycles. The examiner's argument is based on applicant's teachings and not those of the references.

Claim 3 dependent on Claim 1 is deemed allowable for at least the same reasons as Claim 1 and further calls for "said opcodes are for shading." The examiner references Steiner but Steiner does not teach what is missing in Claim 1.

Claims 4- 5 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Harkin in view of White as applied to claim 1 and further in view of Lung, et al (U.S. Patent No. 5,533,174; hereinafter Lung).

Lung describes a low cost page printer. As admitted by the examiner Lung does not disclose means for rendering to include a lookup table that includes opcode values over all of indexes wherein the index into the lookup table is calculated for every pixel using a base value and a gradient in both x and y directions. The examiner references Harkin to teach this but this is not taught in Harkin for the reasons discussed above.

Applicant's claim 5 calls for "a printing device;
a printer controller for controlling said printing device, said printer controller including means for interpreting responsive to each line of source language to translate into machine language and then execute and wherein a figure to be printed is divided into graphics rendering primitives and means for rendering where each and every pixel in the primitive is a function of its position in the primitive, said means for rendering includes a lookup table that includes opcode values over all values of indexes wherein the index into the lookup table is calculated for every pixel using a base value and a gradient in both x and y directions and said means for providing opcode values for all values of indexes includes determining maximum and minimum values of index of normal table area of a lookup table, and expanding the lookup table above and below said

maximum and minimum values of said index by replicating the highest value if the index is above the normal table value and replicating the lowest value if the index is below the normal table area and removing core loop checks.”

As discussed previously this is neither taught nor suggested in the Harkin or White references and is not taught in Lung. There is no provision for providing for all values of indexes, there is no teaching of determining maximum and minimum values of the index and no teaching of replicating the highest value if the index is above the maximum value and replicating the lowest value if the index is below the minimum value. There is no removing of the core loop checks. As stated in the background of the patent application the prior art had delays in the time for rendering pixels occur because of the time taken to access outside the lookup table area. The present application reduces these delays by the determining maximum and minimum values of index of normal table area of a lookup table, and expanding the lookup table above and below said maximum and minimum values of said index by replicating the highest value if the index is above the normal table value and replicating the lowest value if the index is below the normal table area and removing core loop checks. Claim 5 is therefore deemed allowable over these references.

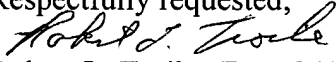
Claim 6, as amended) calls for: “a rendering subsystem including a means for generating an index for each pixel in each of said pixels, said rendering subsystem including means for determining maximum and minimum values of index of normal table area of a lookup table and rendering an expanded lookup table for the entire range of index values and removing core loop checks, said rendering lookup table of said rendering subsystem has its highest and lowest values

replicated above and below the normal table indexes so as to provide lookup table values for the entire range of indexes.”

As discussed previously this is not taught or suggested in the references.

Since there is no other reason for rejection applicant's Claims 1-6 are deemed allowable and an early notice of allowance is deemed in order and is respectfully requested.

Respectfully requested;


Robert L. Troike (Reg. 24183)

Telephone No. (301) 751-0825